

# Science Fair Central

## *10 Steps to an Invention Project*

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1. **Choose a problem:** Find a problem that you or someone you know has experienced. Keeping the problem local increases the likelihood that it will be a manageable project.
2. **Research it :** Find out what others know. Use primary sources such as your own experiences or local experts. Use secondary sources, such as books, articles from the web or magazines.
3. **Suggest a solution and explain why it should work:** Propose an idea for solving the problem. Sometimes factors such as size, safety or limited time require that you use a model. (let's say you are improving a bridge design). Once the model proves that the solution can work, your project is complete. But in real life, the solution could help someone build that bridge.
4. **Design the solution:** Come up with a way to measure the change your invention will make. Measurement is the key to good science and good engineering. Just saying that what you did made a difference is no good. You must present evidence to yourself and to others that the change occurred.
5. **Validate the design:** Before presenting the project for approval, ask yourself these questions:
  - Is it safe to do?
  - Do I have permission to do it?
  - What materials do I need and can I get them?
  - Do I have enough time to build and test my idea and to write it up?
  - If it involves living things, will they be safe?
6. **Get the project approved:** an adult needs to approve the project before you start.
7. **Build the solution:** This takes the most time. How much depends on the project, but you need to leave yourself time to write up the results and prepare the presentation.
8. **Collect data:** Inventors and engineers collect data to help them know if their solution is working. Without the data there is no way to demonstrate that the invention or idea worked.
9. **Make sense of the data:** how do you know it worked, or didn't work? Look for patterns in the data. Use a table or other graphic organizer to help organize the data so it can be reviewed. Often a graph of the data, if appropriate, helps to see trends or compare before and after data.
10. **Develop a report and share it with your fellow scientists:** Look at sample projects and the project checklist to be sure you include everything you should.

